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High-Power C/L-band SM Booster EYDFA with Front Control & Interlock

User's Manual

P/N: EDFA-11x112xxxxxxx

Version: 2025-10

Contents

Warning

When Emission Button is pushed down and turns solid blue, and sufficient laser power is sent to its input port, amplifer output will be on at the power level set last time. This power level can be changed through GUI or front-panel control.

Warning

For amplifiers with output power higher than 30dBm/1W one of the three options of output fiber below is required.

- A pair of fiber optic patch cables with matched high-power connectors
- Splicing of two matched fiber optic cables
- High-power collimator to free space

Fail to do so will cause severe damage to output fiber, even to amplifier.

Warning

All fiber connectors need to be cleaned and inspected before connecting them to the output port of amplifier.
Fail to do so might cause poor performance of amplifier, severe damage to fiber and even amplifier.

1 Safety Warnings

1) Only SMF-28 single-mode fiber or compatible fiber cable can be connected to this amplifier. Using of other fiber cables, including multimode fiber cables and single-mode fiber cables with different core size, may cause poor performance or even damage to the amplifier.
2) Only connectors as indicated on the front panel are allowed, such as FC/APC, SC/APC, etc.
3) Clean and inspect connectors and fiber ends prior to installation.
4) Use only industry approved methods, materials, and solutions for cleaning.
5) Always turn off the amplifier prior to plugging/unplugging fiber cable. Failure to do so may cause permanent damage to the amplifier.

2 Operation Instruction

Warning

- If the amplifier wasn't turned off through GUI last time, then once the 'Emission' button lights up, and sufficient laser power is sent to its input port, even without GUI connection, it will have output at the power level set last time.

Warning:

- USB remote control mode and front-panel control mode cannot work simultaneously.
- When a USB cable is connected to the amplifier, front-panel control mode will be automatically disabled, as shown below.

Figure 1: Front-panel control is disabled when plug in USB cable.

1) Plug the AC power cord into the receptacle on the rear panel of the module, and connect to 100-240V AC power source.
2) Clean the connector of SMF-28 fiber cables properly, and then connect them to the Input/Output ports.
3) If USB remote control mode is preferred, connect the USB port on the rear panel to a computer by using the USB cable coming with the amplifier.
4) Turn 100-240V AC power on by using the rocker switch on the rear panel of amplifier.
5) Make sure Emergency Button is pulled up.
6) Set Interlock to desired status.
7) Switch Turn Key to 'ON' position to power on pump circuit and enable USB functions.
8) Front-panel control:
    - Do not connect USB cable to the amplifier.
    - Previous output setting and amplifier monitor parameters will be displayed on the screen on its front panel.
    - Use Mode Switch, Digit Selection buttons, Tuning Knob, and View button to set desired amplifier parameters and view amplifier status.
    - Turn on seed laser source.

- Push Emission button to enable amplifier output. It will be lighted up in solid blue. Now the amplifier will have output power if it wasn't set as 'Pump Off' in GUI last time.
- To turn off amplifier, set output power to lowest level, push Emission button one more time and it's LED will turn dark, switch Turn key to Off position, then set rocker switch on rear panel to Off.

9) USB remote control mode:

- Connect a USB cable from host computer to the amplifier. Now front-panel control will be disabled.
- Run EDFA GUI program. See instruction in Part 4.
- Change output power level if needed, either in APC or ACC mode.
- Enable amplifier output by clicking 'Pump ON'.
- Push Emission button down.
- To turn off the amplifier set output power to lowest level, push Emission button one more time and it's LED will turn dark, click Pump OFF button in GUI to disable amplifier output, disconnect host computer from the amplifier by clicking Disconnect button in GUI, switch Turn key to Off position, then set rocker switch on rear panel to Off.

3 Function Summary

The front and rear panel of this amplifier are shown in Figure 2.

Figure 2: Front and rear panels of amplifier.

Front Panel

- **Turn Key**

  Switch ON/OFF the power of pump circuit.

  Note:

  When it is OFF USB functions are disabled.

- **Display** screen (front-panel control mode only)

  This screen displays amplifier control parameters under front-panel control mode, including set power/current, monitored output power, amplifier module temperature, etc.

  Display of monitor parameters can be selected by pushing the 'View' selection button.

- **View** button (front-panel control mode only)

  View selection button is used to select which monitored parameter will be displayed on the screen.

- **Tuning Knob** (front-panel control mode only)

  Turn clockwise or counterclockwise to change power/current settings.

- **Digit Selection buttons** (front-panel control mode only)

  Select digit in power/current setting, which needs to be changed.

- **Mode Switch** (front-panel control mode only)

  Switch to select working mode, i.e. APC (automatic power control) mode, or ACC (automatic current control) mode.

- **Input & Output**

  The fiber ports on its front panel are for laser input and output. SMF-28 optical fiber cable is required for this model, and fiber connector must match the type indicated on front panel, i.e. FC/APC, FC/PC, SC/APC, etc.

  When collimator is the option of amplifier output then no need of fiber connection.

  For amplifier with 2W or higher output power fiber connector is placed outside amplifier box, if high-power connector is not ordered with the amplifier.

- **Emission Enable Button & Indicator**

  Enable or disable the output of the amplifier. Push it down to enable amplifier output, and push it one more time to release it thus to disable amplifier output.

  Indicator status

  OFF: Dark

  ON: Lighted up in solid blue

  Note:

This amplifier is designed to work between -10 ~ 60°C temperature range. Humidity should not exceed 90%. Installation is recommended in a temperature & humidity controlled, dust-free environment.

- **Emergence Push Button**

  In case of emergence push it down to disable amplifier output.

  To resume amplifier output turn it clockwise till it pop up.

- **Safety Interlock**

  The SMA connector on rear panel is for safety interlock input.

  Its shield is GND and the core is input. Shorting its core and shield will enable EYDFA output. Once they are disconnected amplifier output will be shut down immediately. When short-circuit is set up again the output of EYDFA will be restored to previous status.

  A SMA shorting-cap is provided as default option.

Interlock Status	Emission Control
Open-circuit	Off
Short-circuit	On

Rear Panel

- **Power Socket**

  This module needs 100-240V AC power. Its on-off power switch locates on rear panel.

- **USB Control**

  The type-B USB port is for remote control.

  Note:

  The RS232 port is not functional for this model.

4 Software Instruction

Note:

USB to COM driver for FTDI devices needs to be installed on the computer for remote control. The driver can be downloaded from https://ftdichip.com/drivers/vcp-drivers/.

1) Download GUI software ‘EDFA GUI V3.0’ from the link below, under Other Download.

   https://photonwares.com/product/fiber-optical-amplifier-edfa-1540-1565nm-high-power/

Figure 3: Driver download link

2) Unzip the file and run setup.exe to install the GUI on host computer.
3) Turn on Emission on the front panel of the EDFA to power up the whole unit and enable USB functions.
4) Run EDFA GUI V3.0.
5) Choose device model EDFA-M
    - EDFA-H: standard version EDFAs with 30dBm or higher output power.
    - EDFA-L: standard version EDFAs with less than 30dBm output power.
    - **EDFA-M: standard M511 EYDFAs with 23-40dBm output power.**
    - EDFA-C: high-end or special version EDFAs.

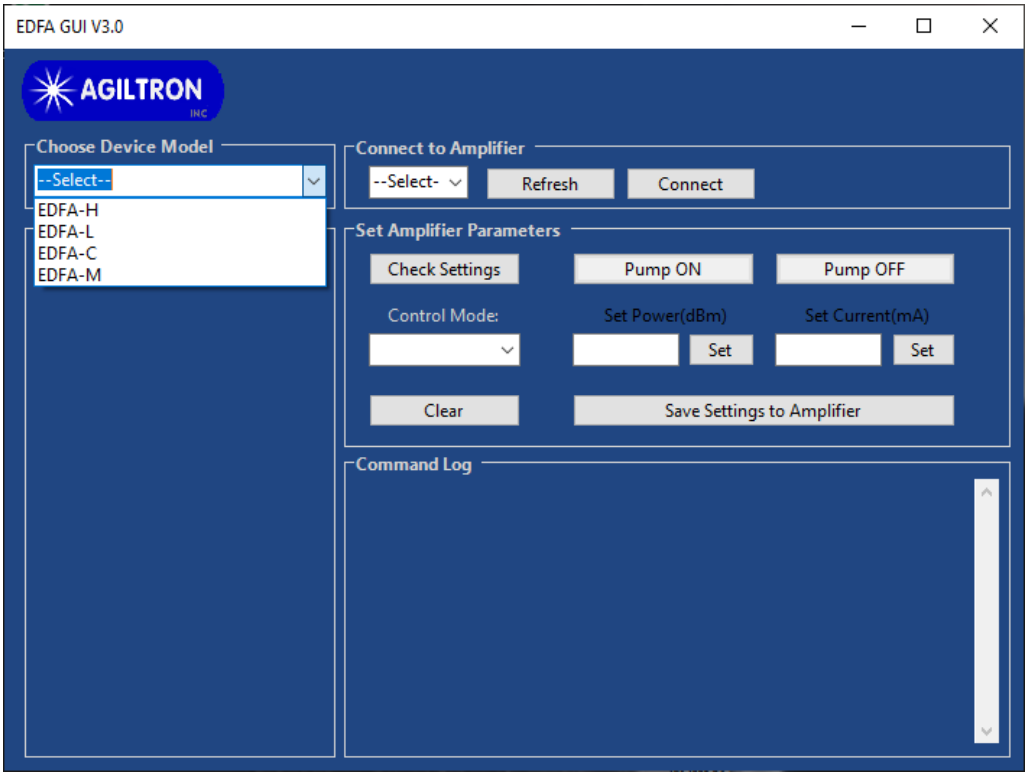

Figure 4: Remote control software: model selection

6) Port Selection:

    Select the serial port, to which the EDFA is connected, from the 'Port List', and click 'Connect'. If the desired port doesn't show up click 'Refresh' button and try again.

7) Click 'Connect' button to build the connection between computer and the EDFA.

8) Once EDFA has been connected successfully the status of the EDFA will be displayed in Monitor Status window. The status keeps updating at an interval of 1 second.

9) Check Setting

Click to get the settings from the EDFA.

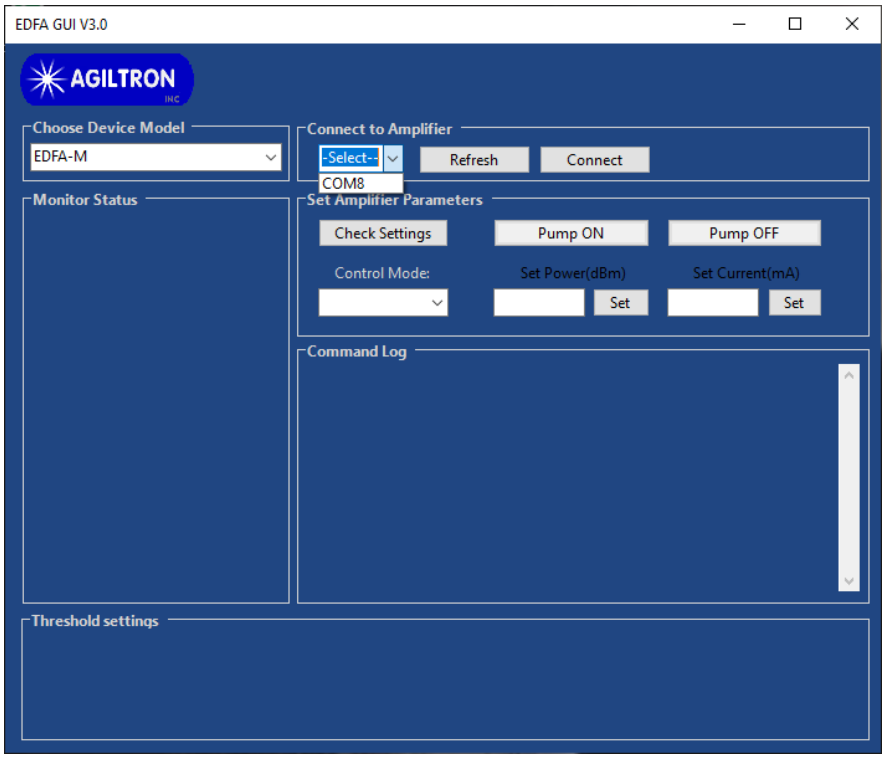

Figure 5: Remote control software: COM port selection.

10) Control Mode Selection

Click 'Control Mode' button to get the current mode setting of EDFA.

- Power Control: constant power control mode
- Current mode: constant current control mode

Select the desired mode and input setting value into the corresponding 'Set Power(dBm)' or 'Set Current(mA)' box, then click 'Set' button.

11) Save Settings

Each time when 'Set' button is clicked current settings will be saved to the EDFA.

When turn on the EDFA next time it will run under saved settings, even without GUI connection.

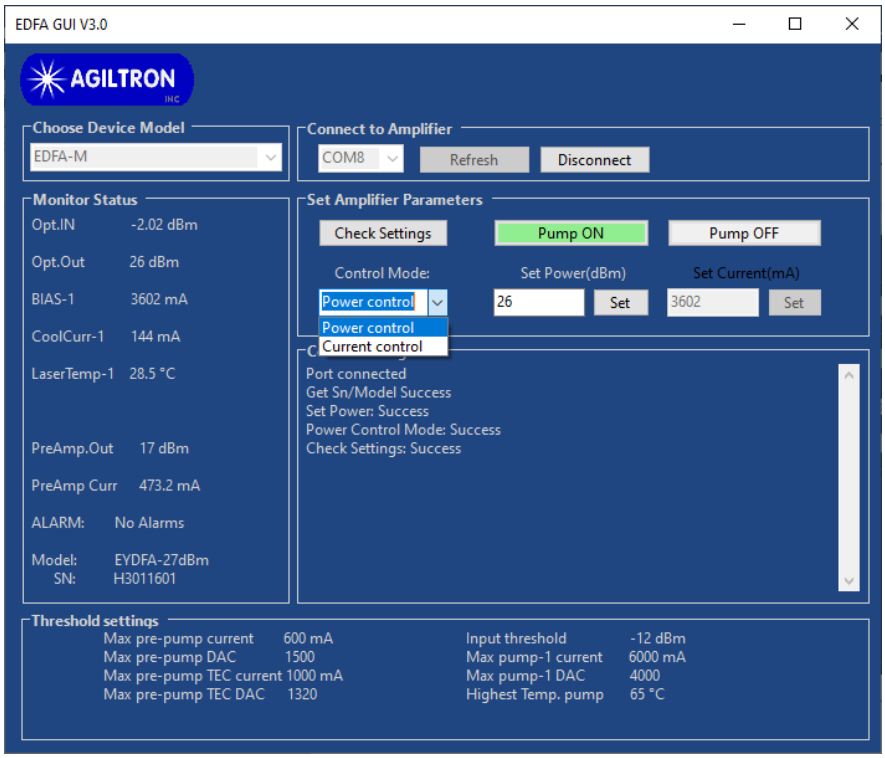

Figure 6: Remote control software: control mode selection

12) Pump ON/OFF

Click to turn on/off the EDFA pump laser, thus to turn on/off its output.

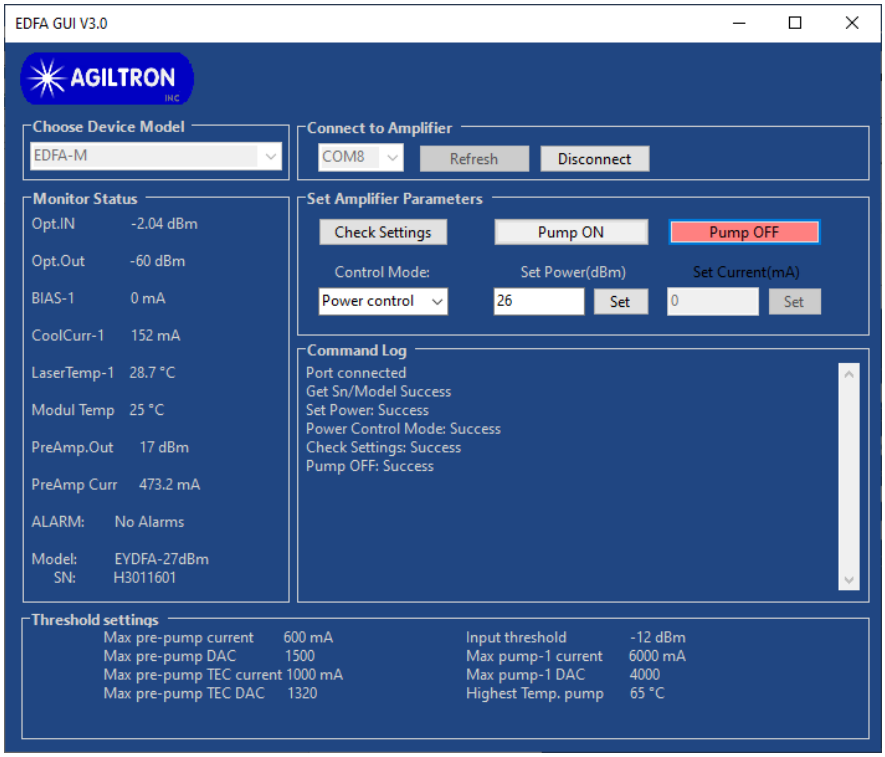

Figure 7: Remote control software: output is turned off.